

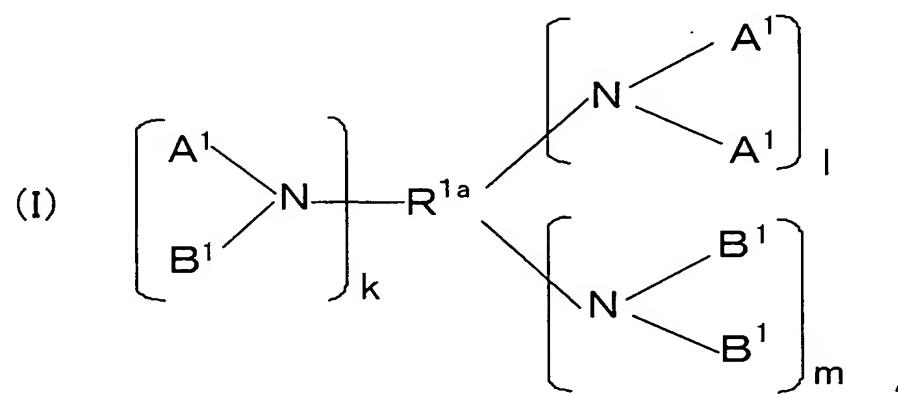
CLAIMS

1. A modified hydrogenated copolymer comprising:
 - a hydrogenated copolymer obtained by hydrogenating an unhydrogenated copolymer comprising conjugated diene monomer units and vinyl aromatic monomer units, said unhydrogenated copolymer having at least one polymer block (H) of said vinyl aromatic monomer units, and a functional group-containing modifier group bonded to said hydrogenated copolymer,
 - 10 said modified hydrogenated copolymer having the following characteristics (1) to (4):
 - (1) a content of said vinyl aromatic monomer units of from more than 60 % by weight to less than 15 90 % by weight, based on the weight of said hydrogenated copolymer,
 - (2) a content of said polymer block (H) of from 0.1 to 40 % by weight, based on the weight of said unhydrogenated copolymer,
 - 20 (3) a weight average molecular weight of from more than 100,000 to 1,000,000, and
 - (4) a hydrogenation ratio of 70 % or more, as measured with respect to the double bonds in said conjugated diene monomer units.

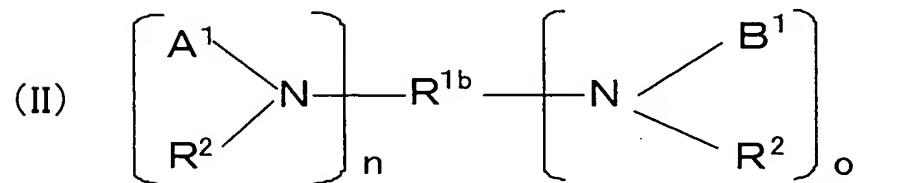
2. The modified hydrogenated copolymer according to claim 1, which is represented by a formula selected from the group consisting of the following formulae (I) to (V):

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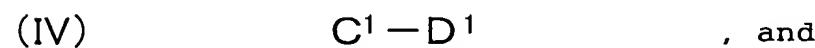
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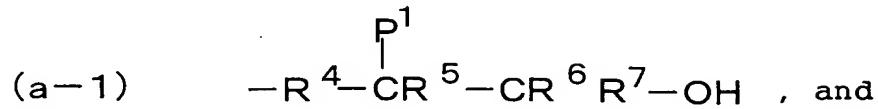
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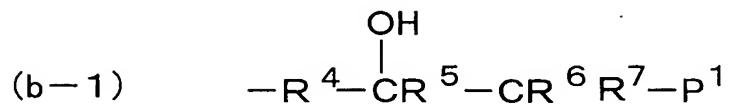
wherein:

A^1 represents a unit which is represented by any one of the following formulae (a-1) and (b-1):

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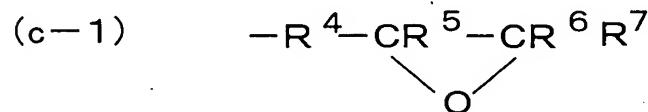


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B^1 represents a unit which is represented by the following formula (c-1):

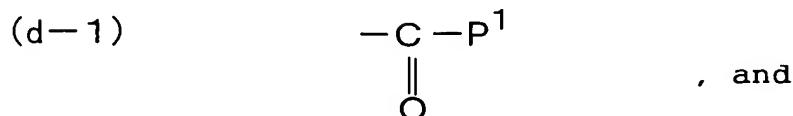
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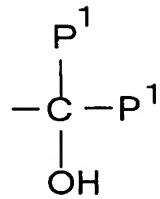
C^1 represents a unit which is represented by any one of the following formulae (d-1) and (e-1):

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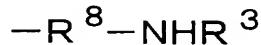
(e-1)



D^1 represents a unit which is represented by the following formula (f-1):

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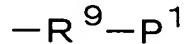
(f-1)



E^1 represents a unit which is represented by the following formula (g-1):

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(g-1)



, and

F^1 represents a unit which is represented by any one of the following formulae (h-1) to (j-1):

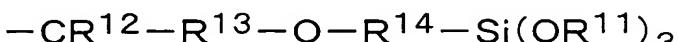
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(h-1)



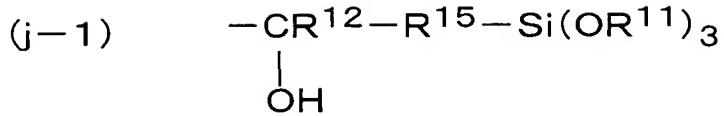
,

(i-1)



, and

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wherein, in the formulae (I) to (III)

and (a-1) to (j-1):

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N represents a nitrogen atom, Si represents a silicon atom, O represents an oxygen atom, C represents a carbon atom, and H represents a hydrogen atom,

P¹ represents said hydrogenated copolymer,

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each of R^{1a}, R^{1b}, R³, R⁴, R⁸ to R¹⁰ and R¹³ to R¹⁵ independently represents a C₁-C₄₈ hydrocarbon group and optionally independently has at least one functional group selected from the group consisting of a hydroxyl group, an epoxy group, an amino group, a silanol group and a C₁-C₂₄ alkoxy silane group,

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each of R² and R¹¹ independently represents a C₁-C₄₈ hydrocarbon group,

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each of R⁵ to R⁷ and R¹² independently represents a hydrogen atom or a C₁-C₄₈ hydrocarbon group.

wherein each of R^{1a} , R^{1b} , R^2 to R^4 and R^8 to R^{15} optionally independently has bonded thereto at least one atom selected from the group consisting of an oxygen atom, a nitrogen atom, a sulfur atom and a silicon atom, said at least one atom being present in a linkage other than a hydroxyl group, an epoxy group, an amino group, a silanol group and an alkoxy silane group, and

5 each of k , l , m and o is independently an integer of 0 or more, provided that both k and l are not simultaneously

10 0, and n is an integer of 1 or more.

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3. The modified hydrogenated copolymer according to claim 1, which exhibits substantially no crystallization peak observed at -50 to 100 °C in a differential scanning calorimetry (DSC) chart obtained with respect

20 to said modified hydrogenated copolymer.

4. The modified hydrogenated copolymer according to claim 1, which has a molecular weight distribution of from 1.5 to 5.0.

5. The modified hydrogenated copolymer according to claim 2, which is represented by the formula (I).
6. The modified hydrogenated copolymer according to 5 claim 2, which is represented by the formula (II).
7. The modified hydrogenated copolymer according to 10 claim 2, which is represented by the formula (III).
8. The modified hydrogenated copolymer according to claim 2, which is represented by the formula (IV).
9. The modified hydrogenated copolymer according to 15 claim 2, which is represented by the formula (V).
10. The modified hydrogenated copolymer according to any one of claims 1 to 4, which is a foam.
11. The modified hydrogenated copolymer according to 20 any one of claims 1 to 4, which is a shaped article.
12. The modified hydrogenated copolymer according to claim 11, which is a multilayer film or a multilayer sheet.

13. The modified hydrogenated copolymer according to
claim 11, which is a shaped article produced by a
method selected from the group consisting of an extru-
sion molding, an injection molding, a blow molding, an
air-pressure molding, a vacuum molding, a foam molding,
a multilayer extrusion molding, a multilayer injection
molding, a high frequency weld molding, a slush molding
and a calender molding.

10 14. The modified hydrogenated copolymer according to
any one of claims 1 to 4, which is a building material,
a vibration damping, soundproofing material or an elec-
tric wire coating material.

15 15. A crosslinked, modified hydrogenated copolymer ob-
tained by subjecting the modified hydrogenated copoly-
mer of any one of claims 1 to 4 to a crosslinking reac-
tion in the presence of a vulcanizing agent.

20 16. A modified hydrogenated copolymer composition com-
prising:
1 to 99 parts by weight, relative to 100 parts by
weight of the total of components (a) and (b), of (a)
the modified hydrogenated copolymer of any one of
25 claims 1 to 4, and

99 to 1 part by weight, relative to 100 parts by weight of the total of components (a) and (b), of (b) at least one polymer selected from the group consisting of a thermoplastic resin other than said modified hydrogenated copolymer (a) and a rubbery polymer other than said modified hydrogenated copolymer (a).

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17. The modified hydrogenated copolymer composition according to claim 16, which is a foam.

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18. The modified hydrogenated copolymer composition according to claim 16, which is a shaped article.

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19. The modified hydrogenated copolymer composition according to claim 18, which is a multilayer film or a multilayer sheet.

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20. The modified hydrogenated copolymer composition according to claim 18, which is a shaped article produced by a method selected from the group consisting of an extrusion molding, an injection molding, a blow molding, an air-pressure molding, a vacuum molding, a foam molding, a multilayer extrusion molding, a multilayer injection molding, a high frequency weld molding, a slush molding and a calender molding.

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21. The modified hydrogenated copolymer composition according to claim 16, which is a building material, a vibration damping, soundproofing material or an electric wire coating material.

22. A crosslinked, modified hydrogenated copolymer composition obtained by subjecting the modified hydrogenated copolymer composition of claim 16 to a crosslinking reaction in the presence of a vulcanizing agent.